

CLAIMS

What is claimed is:

1. An electroporation reactor for the continuous processing of products in the form of pieces, such as in a process liquid using high voltage pulses, said reactor comprising a housing (11) of dielectric material, a circular cylindrical metallic drum (7) supported in said housing so as to be capable of rotating about its horizontal cylinder axis at 0.5 to 4 turns per min, carrier elements (5) disposed on the outer wall of said drum (7) and being uniformly distributed over the circumference thereof, said housing having an open area above the axis of rotation (3) of said drum, a process good supply structure (13) connected to said housing and having a lower area with a supply rake (6), which is disposed in a supply zone (a) of the electroporation reactor and through which the carrier elements of the drum (7) pass, a degasification zone (b), and a reaction zone (c) formed in the space between the drum (7) and the reactor wall (12) of the housing (11), and a discharge zone (d) through which the carrier elements (5) pass, said discharge zone including a discharge rake (14) through which the carrier elements pass to collect the processed products carried along by the transport elements and to direct them onto a discharge chute (15) extending from the discharge zone (d), at least one electrode group (1), which is disposed in the lowest arc area of the reactor wall (12) and has an exposed area which faces the drum (7) and is always fully wetted by

the process liquid, each electrode group being connected to its own electrical energy supply device by way of its own switch, and grounded areas on said drum facing the annular space, so as to be capable of providing in the annular space of the electrode group to which high voltage is to be supplied, within no more than 3 μ sec, an electric field strength of 10 kV/cm so that the products carried through the reaction zone reach, at least once during their passage, the threshold potential difference

$$\Delta\phi = z \cdot E = 10 \text{ V}$$

for irreversible electroporation, the process liquid fill level in the annular space being below the rotational axis (3) of the drum and above the highest electrode group.

2. An electroporation reactor according to claim 1, wherein the carrier elements (5) mounted on the drum (7) have a coating of a dielectric material, are bend-resistant and have a wear resistant surface and are inert with respect to the process environment.

3. An electroporation reactor according to claim 2, wherein the bend-resistant carrier elements (3) mounted on the drum are resiliently supported.

4. An electroporation reactor according to claim 1, wherein said housing is a metallic housing which provides an outward magnetic radiation seal.